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A STUDY OF THE ATTITUDES OF MARRIED  
MINUTEMAN CREWMEMBERS AND THEIR WIVES  
CONCERNING FEMALE MINUTEMAN CREWMEMBERS.

(9) Masters THESIS

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A STUDY OF THE ATTITUDES OF MARRIED  
MINUTEMAN CREWMEMBERS AND THEIR WIVES  
CONCERNING FEMALE MINUTEMAN CREWMEMBERS

THESIS

Presented to the Faculty of the School of Engineering  
of the Air Force Institute of Technology  
Air University  
In Partial Fulfillment of the  
Requirements for the Degree of  
Master of Science

by

Duane A. Carolus, B.S.  
Captain USAF

Graduate Operations Research

December 1978

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Captain Duane A. Carolus

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## ABSTRACT

Utilization of females in new career fields has been steadily increasing in the Air Force over the past few years. One career field not yet opened to females is Minuteman Missile Combat Crew duty. This study analyzes the attitudes of married male Minuteman combat crewmembers and their wives about female crewmembers.

Frequency analysis, Correlation analysis, and Linear Regression analysis techniques were used to determine various statistical relationships. Data was supplied by married crewmembers of the 44th Strategic Missile Wing at Ellsworth Air Force Base, South Dakota and their wives. The analysis showed that crewmembers and their wives thought females should be allowed to be on Minuteman crews. The wives indicated an overwhelming preference for an all-female crew as opposed to a male-female crew. The crewmembers were about evenly split as to type of crew pairing. The author recommended using an all-female crew pairing plan when females are initially assigned to Minuteman Combat Crews.



## I Introduction

"I believe, under the circumstances of a two member crew in a small open capsule, that female crewmembers are basically far more problems than they are worth. There are just some situations in which men and women should not be mixed."

"Don't let this thing come to pass!!!!"

"I may be unusual in my thinking but I honestly would not be worried or bothered by it."

"If a female is capable of understanding and performing the duties required of a crewmember (and I see no reason they can't) then they should be given the opportunity to do so."

These comments illustrate the polarization of thinking present in Minuteman crewmembers and their wives concerning female Minuteman crewmembers. Female Minuteman crewmembers are not reality but a possibility. Since the Minuteman weapon system became operational in the early 1960's, there have been no female crewmembers for the system. I feel that this situation will change in the near future. Female Air Force officers are moving into more and more jobs that have been previously all-male jobs. In August 1978, female crewmembers were placed on Titan missile crews for the first time. The decision to place females on Minuteman crews could easily be met by more opposition from the wives of the male crewmembers than from the male crewmembers. This opposition could create significant problems with the manning of the Minuteman crews.

### The Purpose of this Study

The purpose of this study is to determine the relationships that exist between various demographic categories and the expressed attitudes of married Minuteman crewmembers and their wives concerning female crewmembers. Of particular concern are the expressed attitudes about various crew pairings under differing circumstances. The observed relationships could then be utilized in assigning new personnel to Minuteman crew duty and reassigning others within the Minuteman system after females are placed on Minuteman crews.

A secondary objective is to provide the writer, while still in an academic environment, an opportunity to employ some of the research methods and analytical techniques learned in prior courses.

### Limitations

1. The source of data is the survey titled "Attitudes of Minuteman Missile Combat Crew Members and Their Wives Concerning Female Minuteman Missile Combat Crew Members", USAF SCN 78-173, a survey developed specifically as part of this thesis effort (see Appendix B).

2. The answers provided by the respondents may only be approximations to true attitudes since only a discrete range of responses was offered.

3. No follow-up of particular responses or comments was possible because of guaranteed anonymity.

4. The writer is personally familiar with the situation at Ellsworth AFB, S.D., so descriptions and comments will pertain to Ellsworth AFB.

Slight modifications may be necessary for other Minuteman bases. These minor configuration differences should have no effect on the outcome of the study.

#### Assumptions

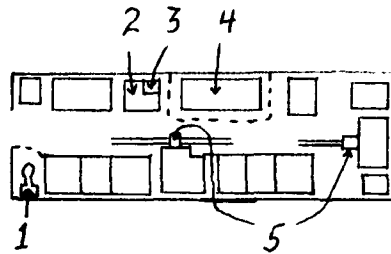
1. Each person who responded to the survey did so in a truthful manner.
2. The people who responded to the survey are representative of the population of married Minuteman crewmembers and their wives.

#### Background

A Minuteman crew consists of two people, both officers. When the crew is on duty, it is in an environment very different from most work environments. The crew is underground in a secure Launch Control Center (LCC) for at least an 8 hour shift, and possibly 24. Access to the LCC is controlled by the crew. Except in emergency situations, if the crew does not want someone to enter, it is impossible for that person to enter.

Since the LCC's are designed to allow the crew to survive in the event of a nuclear attack, a small electric oven, small refrigerator-freezer, bed, toilet, and survival rations are located in the LCC, in addition to the electronic equipment necessary to operate the Minuteman system. Except for the survival rations, these items are available for use on a day-to-day basis, also. The bed and toilet can each be screened off from the rest of the LCC by privacy curtains. Figure 1 shows a view

from above of a typical LCC at Ellsworth AFB. The dotted lines show the location of the privacy curtains.



- |                 |                   |
|-----------------|-------------------|
| 1. Toilet       | 4. Bed            |
| 2. Refrigerator | 5. Sliding Chairs |
| 3. Oven         |                   |

Figure 1. Typical LCC (viewed from above)

The LCC is approximately 8' high, 12' wide, and 28' long. As can be seen from the diagram, the space available for movement is much less. The non-labeled items in Figure 1 are the racks of electronic equipment and associated items necessary to operate the Minuteman system.

The majority of time that a crew is on duty is spent monitoring for visual and audible alarm indications on the electronic equipment, not really "working" in the more physical sense of the word. When monitoring, there are very few restrictions placed on what the crew can be doing. The main restriction is that they remain in the LCC with at least one of the two crewmembers alert. The alert person may do just about anything he wants as long as he is able to respond to alarm indications in a timely manner. If there were a male and a female on the

same crew, the abundance of free time could conceivably cause spouses to wonder how the time was being spent. An extramarital sexual relationship is a possibility that may concern some wives, as well as be of concern to Hq SAC personnel dealing with crew manning.

One of the prerequisites to being certified as a Minuteman crewmember is evaluation and clearance under the Personnel Reliability Program, AFR 35-99. This program is used to ensure that only mature, mentally stable individuals are allowed to be in partial control of nuclear armed Minuteman missiles. Once cleared under this program, an individual can be temporarily removed if he is placed under undue mental stress, whatever the reason. As one female respondent commented, "In my opinion, I would not be able to cope psychologically with it and hopefully because of my state of mind my husband would be taken off PRP and not be pulling alerts!" Problems such as this or other severe marital problems could be grounds for temporary removal. If the circumstances warrant, the removal can be made permanent. Other individuals would then have to perform alert duty for the removed individual. These extra alerts could be the cause of problems for the individuals assigned to perform them. A snowballing effect is possible. It is conceivable that a strategic missile wing would not have enough qualified crewmembers available to cover all the alerts. This could lead to some of the Minuteman missiles being called off-alert, thus degrading our nation's defense posture.

## II METHODOLOGY

The methodology of this study is presented in four main sections. The sample population and the sample are covered in the first two sections. The third section explains the questionnaire. The final section is a discussion of the analytic methods to be used.

### The Sample Population

The data used in this analysis were obtained from a sample of the married Minuteman crewmembers and their wives of the 44th Strategic Missile Wing (SMW), Ellsworth Air Force Base, South Dakota. The 44th SMW was chosen as representative of the six Minuteman missile wings in the Strategic Air Command (SAC). These missile wings are located in relatively low density population areas of Missouri, Wyoming, South Dakota, Montana and North Dakota (2).

### The Sample

Survey instruments were mailed to 140 married Minuteman crewmembers and their wives. The surveys were sent to the home addresses in hopes of getting a higher response rate than if they were sent to an official military address. Of the 280 total surveys sent out, 142 were returned by the arbitrary cutoff date of 6 Nov 1978. Of these 142, 70 were from crewmembers and 72 were from wives. Only these surveys were used in the analysis. After the cutoff date, 15 more surveys were received, 8 from crewmembers and 7 from wives.

### The Questionnaire

An Air Force approved survey was the vehicle used to collect the data used in this analysis. The survey consisted of three parts which gathered demographic data, responses to situational questions, and general attitude data. A copy is shown in Appendix B.

#### Demographic Data

The demographic data were obtained so that the respondents could be assigned to various subpopulations during the analysis. Data obtained provided information about:

Type of Crew

Crew Position

Rank

Length of Time on a Crew

Age

Education

Marriage

First time or not

Length

Children

Quality of Marriage

The sex of the respondent was determined by the wording of the questions. Wives were asked to respond to the first four categories with information about their husbands.

### Situational Questions

Four differing, yet similar, hypothetical situations were presented for consideration. The first situation dealt with married male crewmembers crewed with unmarried female crewmembers on 24 hour alerts. The second situation involved married male crewmembers crewed with married female crewmembers on 24 hour alerts. The third situation concerned unmarried female crewmembers crewed with married male crewmembers for 40 hour alerts. The fourth situation dealt with married male crew members crewed with married female crewmembers on 40 hour alerts. Respondents were asked to indicate their feelings about the same four statements following each situation. Possible choices were on a five-point Likert scale and ranged from Strongly Disagree to Strongly Agree. All four statements were worded in the following manner, "I have no objections to . . .

. . .my husband having a female as his regular crewmember."

. . .my husband performing alert with a female crewmember when either my husband or the female is from the standby crew (split alert situation)."

. . .having a male and female on the same crew as long as my husband is not the male involved."

. . . having two females on the same crew."

Necessary wording changes were made to direct these statements to the husband (crewmember) on his survey.



### General Attitude

Three statements were presented in this portion of the survey. The first statement called for the respondent to indicate a preference for either 24 or 40 hour alerts if males and females are together on a crew. The basic difference between the 24 and 40 hour alert is the sleeping situation. On the 24 hour alert, sleeping in the LCC is a necessity. The 40 hour alert is broken into five eight-hour shifts, of which the second and fourth are spent topside in the support facility. Topside, the male and female could have separate rooms for sleeping. The second general attitude statement is concerned with whether females should even be placed on Minuteman crews, regardless of the sex of the other crewmember. The final statement dealt with whether a male and a female should be placed on the same crew under any circumstances. The responses to the second and third statement were measured on the five-point Strongly Disagree to Strongly Agree scale.

### Analytic Methods

Three analytical methods were chosen for use in the data analysis.

They were:

Frequency Analysis (Descriptive Statistical Analysis)

Correlation Analysis

Regression Analysis

The Statistical Package for the Social Sciences (SPSS), a computer package available on the CDC-6600 computer system at Wright-Patterson AFB, was used to generate the necessary output for each of the three methods since complex mathematical calculations were required.

### Frequency Analysis

The frequency of each response to each question is given by this method. The frequencies for each question are given in tabular form, which includes relative and adjusted percentages, and in a histogram, a graphical representation of the frequencies. Various descriptive statistics are also available.

### Correlation Analysis

This technique is a way of measuring the degree of dependence between two variables. To get this measure of dependence/independence an observation on each variable for each respondent is made. There are many types of correlations that can be calculated but the particular one employed by SPSS is Pearson's correlation. A necessary assumption for Pearson's correlation to be meaningful is that the variables are from a bi-variate normal distribution (Ref 2:202). If the variables are independent of each other, Pearson's correlation coefficient  $\rho$  should be equal to zero. Since the correlation between variables is not known, it must be estimated. The sample correlation coefficient,  $r$ , is the maximum likelihood estimate of  $\rho$  and is obtained by the following formula:

$$r = \frac{\sum_{i=1}^N (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^N (x_i - \bar{x})^2 \sum_{i=1}^N (y_i - \bar{y})^2}}$$

where  $(X_i, Y_i)$  denotes random sample paired observations (Ref 3:421). The SPSS output indicates the significance level at which  $r$  can be said to be different than zero. This significance level is based on the Student's  $t$ -distribution with  $N-2$  degrees of freedom for the value of  $t$  computed as

$$t = r \left[ \frac{N-2}{1-r^2} \right]^{1/2}$$

where  $N$  is the number of random samples (Ref 4:281).

### Regression Analysis

Linear regression is a means of predicting, or explaining, the value of one variable based on other variables. Values of the one variable, commonly referred to as the criterion variable, are estimated by some linear combination of the other variables, referred to as predictors. The model relating the criterion variable,  $Y$ , to the predictor variables,  $X_1, X_2, \dots, X_k$ , is of the form

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k + \epsilon$$

where  $\beta_0, \beta_1, \beta_2, \dots, \beta_k$  are unknown parameters

$\epsilon$  is a random variable

and  $X_1, X_2, \dots, X_k$  are recorded without error.

If we assume  $E(\epsilon) = 0$ , which we can do without any loss of generality, then  $E(Y) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k$  (Ref 3:378). For this study, the criterion variable was a situational question, a combination of situational questions, or one of the general attitude questions.

The regression method used was forward stepwise inclusion. In this method, predictor variables are entered into the model, one at a time, from best to worst. The best variable is the one that accounts for the greatest amount of unexplained variance in the criterion variable, as determined by an F statistic. The variables continue to be brought into the model until none of the remaining variables explain a significant amount of the variance of the criterion variable. It should be noted that after each variable is entered in the model, those predictor variables already entered are checked to insure they still contribute a significant amount of variance explanation. If not, they are removed from the model. The critical F values for entry and removal are predetermined by the researcher.

### III. RESULTS

This chapter presents the result of the analysis in five parts. Part one explains the notation used in discussing the results. The second part is a discussion of the results obtained from the Frequency analysis. Correlation analysis results are described in the third part. The fourth part deals with Regression analysis. The final part is a brief summary of the overall results.

#### Notation

To aid the reader in following the discussion of the study results, Table I shows the reference names that have been given to each question/situation. These names have been chosen to convey the intent of the question/situation.

Questions 1-10 are the demographic questions, 11-26 are the situational questions, and 27-29 are the general attitude questions. It should be noted that on the questionnaire, Questions 28 and 29 are reverse worded in comparison to the situational questions. However, the analysis results are presented so that a Disagree on Question 11, for example, corresponds to a Disagree on Question 28 or 29.

Table I  
Reference Names

Question Number	Reference Name	Question
1	CREWCLAS	What is your crew classification?
2	CREWPOS	What is your crew position?
3	RANK	What is your rank?
4	CREWTIME	How long have you been on a Minute-man crew?
5	AGE	What is your age group?
6	EDUCATION	What is your highest level of formal education?
7	FIRSTMAR	Is this your first marriage?
8	LENGTHMAR	How many years have you been married to your present wife?
9	CHILDREN	How many children do you have?
10	QUALMAR	How would you categorize your marriage?
11,15,19,23	REGULAR CREW	I have no objections to having a female as my regular crewmember.
12,16,20,24	SPLIT CREW	I have no objections to performing alert with a female crewmember when either she or I are from the standby crew (split alert situation).
13,17,21,25	MIXED UNINVOLVED	I have no objections to having a male and a female on the same crew as long as I am not the male involved.
14,18,22,26	TWO FEMALES	I have no objections to having two females on the same crew.
27	ALERT PREF	If males and females are placed together on a crew, I would prefer _____ (24 or 40 hr alerts).

Table I (continued)

Question Number	Reference Name	Question
28	FEMALES ON CREW	Females should not be placed on Minute-man crews, irrespective of whether they are crewed with males or females.
29	FEMALES WITH MALES	Females should not be placed on Minute-man crews with males.
Situation 1	SINGLE, 24	Female crewmember is single and length of alert is 24 hrs.
Situation 2	MARRIED, 24	Female crewmember is married and length of alert is 24 hrs.
Situation 3	SINGLE, 40	Female crewmember is single and length of alert is 40 hrs.
Situation 4	MARRIED, 40	Female crewmember is married and length of alert is 40 hrs.

#### Demographic Data

The breakdown of the sample is shown through selected demographics in Table II. This information was provided by the SPSS subprogram FREQUENCIES. Figures provided are in percent, except for the mean response to each question, shown in parentheses. All responses were coded 1,2,...,n where n is the number of responses for each particular question.

This table shows that there is little difference between the two subpopulations, Wives and Husbands, except in the areas of Age and Education. A possible explanation for the higher educational level for husbands is the requirement to be a college graduate to be an Air

Force officer and also the availability of the Minuteman Education Program for obtaining Master's Degrees. Even though no attempt was made to link a husband's responses with those of his wife, the biographical data tends to indicate that in the majority of cases, if the husband responded to the questionnaire, the wife did also, and vice versa.

The average female respondent on the survey is about 28 years old, has had slightly more than two years of college, has been married for about five and one-half years (her first marriage), has one child, and considers the quality of her marriage to be somewhere between good and very good. Her husband is a First Lieutenant and has been on a Minuteman crew about two years. The average husband respondent on this survey is about 29 years old, is nearing completion of graduate work for a Master's Degree, has been married about five and one-half years (his first marriage), has one child, and considers the quality of his marriage to be somewhere between good and very good. He is a First Lieutenant and has been on a Minuteman crew about two years.



Table II  
Biographical Data of Sample

	Wives	Husbands	Total
<b>CREW CLASSIFICATION</b>			
Standboard	9.7%	8.6%	9.2%
Instructor	20.8	25.7	23.2
Flight Commander	18.1	17.1	17.6
Line	51.4	48.6	50.0
<b>CREW POSITION</b>			
Commander	66.7%	65.7%	66.2%
Deputy	33.3	34.3	33.8
<b>RANK (Mean)</b>			
(2.056)	(2.057)	(2.056)	
1= 2Lt	20.8%	20.0%	20.4%
2= 1Lt	54.2	55.7	54.9
3= Capt	23.6	22.9	23.2
4= Major or above	1.4	1.4	1.4
<b>TIME ON CREW (Mean)</b>			
(2.764)	(2.857)	(2.810)	
1= Less than 1 yr.	18.1%	14.3%	16.2%
2= Between 1 and 2 yrs.	20.8	17.1	19.0
3= Between 2 and 3 yrs.	33.3	41.4	37.3
4= Between 3 and 4 yrs.	22.2	22.9	22.5
5= More than 4 yrs.	5.6	4.3	4.9
<b>AGE (Mean)</b>			
(2.208)	(2.429)	(2.317)	
1= Under 25	23.6%	14.3%	19.0%
2= 25 - 29	43.1	42.9	43.0
3= 30 - 34	22.2	28.6	25.4
4= 35 or more	11.1	14.3	12.7
<b>EDUCATION LEVEL (Mean)</b>			
(2.611)	(4.333)	(3.454)	
1= High School	9.7%	0.0%	5.0%
2= Some College	45.8	0.0	23.4
3= Bachelor's Degree	23.6	8.7	16.3
4= Some Graduate Work	15.3	56.5	35.5
5= Master's Degree	5.6	27.5	16.3
6= Work Beyond Master's	0.0	7.2	3.5
<b>FIRST MARRIAGE (Mean)</b>			
(1.069)	(1.058)	(1.064)	
Yes	93.1%	94.2%	93.6%
No	6.9	5.8	6.4
<b>YEARS MARRIED TO PRESENT SPOUSE (Mean)</b>			
(2.583)	(2.609)	(2.596)	
1= Less Than 2	11.1%	10.1%	10.6%
2= 2 - 5	38.9	37.7	38.3
3= 6 - 9	30.6	33.3	31.9
4= 10 or More	19.4	18.8	19.1

Table II (continued)

	Wives	Husbands	Total
NUMBER OF CHILDREN (Mean)	(2.153)	(2.159)	(2.156)
1 = 0	34.7%	34.8%	34.8%
2 = 1	30.6	31.9	31.2
3 = 2	19.4	15.9	17.7
4 = 3 or more	15.3	17.4	16.3
QUALITY OF MARRIAGE (Mean)	(4.620)	(4.623)	(4.621)
1 = Very Bad	0.0%	0.0%	0.0%
2 = Bad	0.0	0.0	0.0
3 = So-so	5.6	5.8	5.7
4 = Good	26.8	26.1	26.4
5 = Very Good	67.6	68.1	67.9

#### Frequency Analysis

In addition to tabulating frequency of responses for the attitudinal questions for the entire sample, attitudinal response frequencies were tabulated for the two major subpopulations, Wives and Husbands. These two subpopulations had sizes of 72 and 70, respectively.

Tables III - V show the frequency distribution of responses to selected criterion variables as percentages. In Table V "Strongly Disagree" and "Disagree" have been combined as have "Agree" and "Strongly Agree".

In analyzing the responses of wives and husbands, the tables show that, as groups, wives and husbands have opposite polarity of feelings about regularly crewing their husband/themselves with a female crew-member who is single when alerts are 24 hours in length (REGULAR CREW, SINGLE, 24). A majority percentage (56) of the wives either disagreed

or strongly disagreed with the statement but a larger percentage (59) of the husbands agreed or strongly agreed. The larger percentage of husbands who agreed or strongly agreed was enough to tip the total figure in that direction also. It is interesting to note that of the wives' disagreement, the majority was "Strongly Disagree" while the majority of husbands' agreement was "Agree". The majority of the wives' agreement was also "Agree" while the husbands' disagreement was mostly in "Strongly Disagree".

When analyzing responses to SPLIT CREW, SINGLE, 24, the wives are almost evenly divided between disagreement and agreement. Of those in disagreement with the statement, the majority were "Strongly Disagree", whereas the majority of agreement was "Agree". The husbands did not change much from REGULAR CREW, SINGLE, 24. The majority was in agreement with the statement. As for the wives, the agreement was weighted in favor of "Agree" and disagreement weighted in favor on "Strongly Disagree".

Wives and husbands were in accord on MIXED UNINVOLVED, SINGLE, 24. Both groups expressed disagreement by large margins. This raised a problem that will be discussed a little later.

TWO FEMALES, SINGLE, 24 also showed accord between the two sub-populations. Both were definitely in agreement (81% and 86%) with the statement. The "Agree" and "Strongly Agree" responses were about evenly divided.

When the situations changed to MARRIED, 24, SINGLE, 40 and MARRIED, 40 the response patterns to the statements did not exhibit any noteworthy changes. The discussion for the first situation applies to these three situations as well.

The problem raised by the response pattern to MIXED UNINVOLVED is that it indicates the statement is measuring something other than what was intended. The intent was to measure the feeling about male/female crews with the personal involvement of the respondent removed. Apparently the statement did not read that way to the respondents. Logically, the number of disagreements to the MIXED UNINVOLVED statement should never be more than the number of disagreements to the REGULAR CREW or SPLIT CREW statements in the same situation. Based on this, the MIXED UNINVOLVED statement was dropped from further analysis.

The general attitude statement dealing with alert length preference (ALERT PREF) if males and females are placed together on crew showed basically a 2 to 1 preference for the 24 hour alert. I am not sure whether this has any relation to whether men and women are crewed together. As I was coding the data, I got the feeling that once I had coded the responses for the first situation I could have coded the other three situations without even looking at them. The implication of this is that length of alert had little effect on the attitudes. Several respondents even placed written comments by the statement saying that their preference for length of alert had nothing to do with men and women on the same crew.

On the baseline question of whether females should even be placed on Minuteman crews (FEMALES ON CREW), wives and husbands were both overwhelmingly in favor of placing females on crew. Although more husbands than wives (53 to 47) agreed, more wives than husbands (27 to 25) said "Strongly Agree". Approximately 20% said that females should not be placed on Minuteman crews.

FEMALES WITH MALES brought out the difference of opinion between the wives and husbands again. 49% of the wives expressed objections to crewing males and females together while 33% expressed no objections, and 15% were undecided. For the husbands, 31% expressed objections and 57% expressed no objections, with 10% undecided.

Table III  
Summary of Selected Criterion Variable Frequencies  
for Wives  
(in Percent)

Criterion Variable	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
REGULAR CREW, SINGLE, 24	38.9	16.7	12.5	23.6	8.3
SPLIT CREW, SINGLE, 24	31.9	12.5	12.5	36.1	7.0
MIXED UNINVOLVED, SINGLE, 24	32.4	42.3	17.7	11.3	1.3
TWO FEMALES, SINGLE, 24	6.9	5.6	6.9	38.9	41.7
REGULAR CREW, MARRIED, 24	33.3	22.2	9.8	26.4	8.3
SPLIT CREW, MARRIED, 24	25.0	20.8	8.3	38.9	7.0
MIXED UNINVOLVED, MARRIED, 24	31.0	43.6	12.7	12.7	0.0
TWO FEMALES, MARRIED, 24	6.9	5.6	6.9	41.7	38.9
REGULAR CREW, SINGLE, 40	34.7	18.1	9.7	29.2	8.3
SPLIT CREW, SINGLE, 40	29.2	13.9	9.7	40.3	6.9
MIXED UNINVOLVED, SINGLE, 40	32.3	42.3	9.9	15.5	0.0
TWO FEMALES, SINGLE, 40	8.4	4.2	6.9	44.4	36.1
REGULAR CREW, MARRIED, 40	29.0	20.3	8.7	31.9	10.1

TABLE III (continued)

Criterion Variable	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
SPLIT CREW, MARRIED, 40	23.2	17.4	8.7	43.5	7.2
MIXED UNINVOLVED, MARRIED, 40	29.4	44.1	10.3	16.2	0.0
TWO FEMALES, MARRIED, 40	7.3	4.4	7.2	44.9	36.2
FEMALES ON CREW	12.5	9.7	12.5	27.8	37.5
FEMALES WITH MALES	32.9	17.1	15.8	17.1	17.1

Table IV  
Summary of Selected Criterion Variable Frequencies  
For Husbands  
(in Percent)

Criterion Variable	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
REGULAR CREW, SINGLE, 24	20.0	11.4	10.0	40.0	18.6
SPLIT CREW, SINGLE, 24	18.6	11.4	8.6	40.0	21.4
MIXED UNINVOLVED, SINGLE, 24	23.2	42.0	10.1	21.8	2.9
TWO FEMALES, SINGLE, 24	2.9	4.3	7.0	42.9	42.9
REGULAR CREW, MARRIED, 24	20.0	11.4	7.1	37.2	24.3
MIXED UNINVOLVED, MARRIED, 24	26.1	39.1	11.6	18.8	4.3

Table IV (continued)

Criterion Variable	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
TWO FEMALES, MARRIED, 24	2.9	4.3	7.1	44.3	41.4
REGULAR CREW, SINGLE, 40	19.2	13.2	2.9	42.6	22.1
SPLIT CREW, SINGLE, 40	17.6	8.9	5.9	44.1	23.5
MIXED UNINVOLVED, SINGLE, 40	24.2	40.9	10.6	21.2	3.1
TWO FEMALES, SINGLE, 40	5.9	4.4	10.3	42.6	36.8
REGULAR CREW, MARRIED, 40	20.3	11.6	5.8	37.7	24.6
SPLIT CREW, MARRIED, 40	18.8	8.8	5.8	42.0	24.6
MIXED UNINVOLVED, MARRIED, 40	22.4	41.8	11.9	19.4	4.5
TWO FEMALES, MARRIED, 40	7.3	4.4	10.1	42.0	36.2
FEMALES ON CREW	35.7	40.0	5.7	8.6	10.0
FEMALES WITH MALES	18.8	13.0	10.2	33.4	24.6



Table V  
Summary of Selected Criterion Variable Frequencies  
For All Respondents  
(in Percent)

Criterion Variable	Disagreement	Undecided	Agreement
REGULAR CREW, SINGLE, 24	43.7	11.3	45.0
SPLIT CREW, SINGLE, 24	37.4	10.6	52.0
MIXED UNINVOLVED SINGLE, 24	70.0	11.4	18.6
TWO FEMALES, SINGLE, 24	9.8	7.0	83.2
REGULAR CREW, MARRIED, 24	43.7	8.4	47.9
SPLIT CREW, MARRIED, 24	38.7	7.7	53.6
MIXED UNINVOLVED, MARRIED, 24	70.0	12.2	17.8
TWO FEMALES, MARRIED, 24	9.8	7.0	83.2
REGULAR CREW, SINGLE, 40	35.0	7.9	57.1
MIXED UNINVOLVED, SINGLE, 40	70.1	10.2	19.7
TWO FEMALES, SINGLE, 40	11.4	8.6	80.0
REGULAR CREW, MARRIED, 40	40.6	7.2	52.2
SPLIT CREW, MARRIED, 40	34.0	7.3	58.7
MIXED UNINVOLVED MARRIED, 40	68.9	11.1	20.0

Table V (continued)

Criterion Variable	Disagreement	Undecided	Agreement
TWO FEMALES, MARRIED, 40	11.6	8.7	79.7
FEMALES ON CREW	20.5	9.1	70.4
FEMALES WITH MALES	41.0	12.9	46.1

Table VI gives the mean and standard deviation of the criterion variables except ALERT PREF. In computing these figures, the following values were used:

Strongly Disagree	1
Disagree	2
Undecided	3
Agree	4
Strongly Agree	5

Looking at the figures for REGULAR CREW, SINGLE, 24 the mean response for a wife was 2.458, about halfway between Disagree and Undecided. For the husbands, the mean response was 3.257, about one quarter of the way from Undecided to Agree. The mean response for the total sample was 2.852, slightly on the Disagree side of Undecided. This shows the strength of the wives' disagreement since more husbands were in agreement than wives in disagreement.

Table VI  
Criterion Variable Response Means and Standards Deviations

Criterion Variable	Wives		Husbands		Total	
	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
REGULAR CREW, SINGLE, 24	2.458	1.424	3.257	1.421	2.852	1.473
SPLIT CREW, SINGLE, 24	2.736	1.414	3.343	1.423	3.035	1.446
TWO FEMALES, SINGLE, 24	4.028	1.162	4.186	.952	4.106	1.063
REGULAR CREW, MARRIED, 24	2.542	1.404	3.343	1.473	2.937	1.489
SPLIT CREW, MARRIED, 24	2.819	1.367	3.343	1.443	3.077	1.425
TWO FEMALES, MARRIED, 24	4.000	1.151	4.171	.947	4.085	1.055
REGULAR CREW, SINGLE, 40	2.583	1.432	3.353	1.453	2.957	1.488
SPLIT CREW, SINGLE, 40	2.819	1.407	3.471	1.409	3.136	1.440
TWO FEMALES, SINGLE, 40	3.958	1.168	4.000	1.093	3.979	1.128
REGULAR CREW, MARRIED, 40	2.739	1.431	3.348	1.483	3.043	1.484
SPLIT CREW, MARRIED, 40	2.942	1.360	3.449	1.440	3.196	1.419
TWO FEMALES, MARRIED, 40	3.986	1.131	3.957	1.143	3.971	1.133
FEMALES ON CREW	3.681	1.392	3.829	1.285	3.754	1.338
FEMALES WITH MALES	2.686	1.509	3.319	1.460	3.000	1.513

### Correlation Analysis

The correlation analysis tends to confirm my feeling about alert length having little effect on attitudes. For the wives, the least amount of correlation between corresponding situational questions when only the alert length changes is .91. This correlation is between REGULAR CREW, MARRIED, 24 and REGULAR CREW, MARRIED, 40. For the husbands, the lowest correlation is .76 and is between TWO FEMALES, SINGLE, 24 and TWO FEMALES, SINGLE, 40. Tables VII and VIII show the correlation matrix for selected criterion variables for wives and husbands.

The other variable in the situations was the marital status of the female crewmember. This variable also seemed to have little effect on the attitudes. For the wives, the lowest correlation between corresponding questions when changing marital status was .94, SPLIT CREW, SINGLE, 24 with SPLIT CREW, MARRIED, 24. The lowest correlation for husbands was .93, TWO FEMALES, SINGLE, 40 with TWO FEMALES, MARRIED, 40.

In correlating the wives' responses to the situational questions with responses to the general attitude question FEMALES ON CREW, the correlation coefficients range from .49 to .74. Within each situational grouping, the highest correlation is with TWO FEMALES. This implies that if a woman is in favor of having female crewmembers, she is more likely to prefer two females on the same crew than to have her husband crewed with a female.

The correlation coefficients range from .71 to .82 for FEMALES WITH MALES and REGULAR CREW or SPLIT CREW but with TWO FEMALES range from .25 to .27. This indicates that wives' feelings about having two females on the same crew are almost totally removed from their feelings about crewing females with males.

Similar situations are present in the correlations for the husband, with the magnitudes being slightly smaller. Different from the wives, however, is the fact that TWO FEMALES has the lowest correlation with FEMALES ON CREW in each situation. This could mean that if he is in favor of having female crewmembers, he has fewer objections to male/female crews than to all-female crews.

Table VII  
Correlation Matrix for Selected Criterion Variables  
for Wives

Criterion Variable	Q11	Q12	Q14	Q15	Q16	Q18	Q19	Q20	Q22	Q23	Q24	Q26	Q28
REGULAR CREW, SINGLE 24 (Q11)	--												
SPLIT CREW, SINGLE, 24 (Q12)	.873												
TWO FEMALES, SINGLE, 24 (Q14)	.324	.442											
REGULAR CREW, MARRIED, 24 (Q15)	.967	.818	.319										
SPLIT CREW, MARRIED, 24 (Q16)	.847	.944	.438	.867									
TWO FEMALES, MARRIED, 24 (Q18)	.301	.424	.990	.297	.421								
REGULAR CREW, SINGLE, 40 (Q19)	.938	.822	.371	.906	.789	.351							
SPLIT CREW, SINGLE, 40 (Q20)	.836	.931	.468	.799	.898	.452	.899						
TWO FEMALES, SINGLE, 40 (Q22)	.317	.436	.976	.315	.436	.985	.352	.449					
REGULAR CREW, MARRIED, 40 (Q23)	.907	.782	.389	.913	.795	.362	.973	.862	.361				
SPLIT CREW, MARRIED, 40 (Q24)	.823	.907	.488	.825	.921	.473	.879	.973	.468	.891			
TWO FEMALES, MARRIED, 40 (Q26)	.316	.432	.979	.313	.430	.989	.353	.459	1.00	.361	.468		
FEMALES ON CREW (Q28)	.551	.608	.693	.558	.643	.686	.519	.610	.685	.493	.624	.738	
FEMALES WITH MALES (Q29)	.822	.710	.280	.813	.714	.253	.818	.729	.259	.798	.721	.253	.495

Table VIII  
Correlation Matrix for Selected Criterion Variables  
for Husbands

Criterion Variable	Q11	Q12	Q14	Q15	Q16	Q18	Q19	Q20	Q22	Q23	Q24	Q26	Q28
REGULAR CREW, SINGLE, 24	--												
SPLIT CREW, SINGLE, 24	.945												
TWO FEMALES, SINGLE, 24	.393	.401											
REGULAR CREW, MARRIED, 24	.982	.945	.398										
SPLIT CREW, MARRIED, 24	.931	.993	.396	.932									
TWO FEMALES, MARRIED, 24	.397	.407	.992	.404	.402								
REGULAR CREW, SINGLE, 40	.921	.868	.399	.901	.856	.399							
SPLIT CREW, SINGLE, 40	.913	.942	.475	.910	.936	.475	.931						
TWO FEMALES, SINGLE, 40	.322	.360	.757	.320	.374	.757	.414	.417					
REGULAR CREW, MARRIED, 40	.871	.828	.393	.873	.823	.393	.931	.885	.397				
SPLIT CREW, MARRIED, 40	.848	.885	.445	.855	.880	.445	.869	.938	.380	.944			
TWO FEMALES, MARRIED, 40	.313	.404	.762	.313	.416	.762	.381	.462	.931	.373	.432		
FEMALES ON CREW	.501	.484	.465	.498	.470	.465	.567	.549	.474	.568	.547	.452	
FEMALES WITH MALES	.792	.771	.202	.779	.753	.218	.773	.757	.297	.727	.710	.324	.518

### Regression Analysis

In this portion of the analysis, the SPSS subprogram REGRESSION was used to determine the relationships that were present between the criterion (attitudinal) variables and the predictor (demographic) variables. The critical F values for entry and removal of variables were the default values, .01 and .005, respectively. These values are quite low and will allow most variables to enter the regression equation, and a variable will rarely be removed (Ref 4:346). No regressions were accomplished on the entire sample because of the opposite polarity of the husband/wife responses on a majority of the criterion variables. Regressions were accomplished on the two major subpopulations, Wives and Husbands. The criterion variables for the eight regressions for each subpopulation were:

FEMALES ON CREW - Should females be on Minuteman crews?

FEMALES WITH MALES - Should females be crewed with males?

REGULAR CREW, SINGLE, 24 - No objections to my husband/me having a female as his/my regular crewmember for 24 hour alerts when the female is single.

SPLIT CREW, SINGLE, 24 - No objections to my husband/me and a single female on a split alert for 24 hours.

TWO FEMALES, SINGLE, 24 - No objections to two single females on the same crew.

RFM - An average score based on REGULAR CREW under each situation.

SPLIT - An average score based on SPLIT CREW under each situation.

TWO - An average score based on TWO FEMALES under each situation.



Individual questions under all situations were not used as criterion variables due to the high correlation between corresponding questions.

The predictor variables were:

RANK

CREWTIME

AGE

EDUCATION

FIRSTMAR(riage)

LENGTHMAR(riage)

CHILDREN

QUALMAR(riage)

CREWCLAS was not used as a criterion variable since all new crewmembers are placed on Line crews. After demonstrating their capabilities for an undefined length of time, they may then be assigned to one of the three other types of crews.

The pertinent results for analysis are the variables that are indicated as significant in each regression equation and the value of  $R^2$ .  $R^2$  is an indication of the amount of variability in the criterion variable that can be explained by the predictor variables. Also of interest are the beta (standardized) coefficients in the regression equations with more than one significant predictor. Tables IX and X show the significant variables ( $\alpha = .05$ ), beta coefficients, and  $R^2$  for the two sets of regressions. The standardized coefficients are useful when the predictor variables have a different range of responses. The standardization procedure rescales the variables so the range is the same for

each. This means that the beta coefficients then indicate the relative importance of the significant predictors. If two variables contribute approximately equal amounts to the regression, the beta coefficients would be approximately equal.

Table IX  
Significant Variables, Beta Coefficients, and  $R^2$   
For Wives

Criterion Variable	Significant Predictors	Beta Coefficients	Cumulative $R^2$
FEMALES ON CREW	--	--	--
FEMALES WITH MALES	CHILDREN	-.288	.08
REGULAR CREW, SINGLE, 24	CHILDREN	-.382*	.15
SPLIT CREW, SINGLE, 24	CHILDREN	-.300	.09
TWO FEMALES, SINGLE, 24	EDUCATION	+.297	.17
RFM	CHILDREN	-.395**	.16
SPLIT	CHILDREN	-.339**	.12
TWO	--	--	--

\* Significant at .01

\*\* Significant at .001

In Table X we see that when predicting SPLIT CREW, SINGLE, 24, the beta coefficient for CHILDREN is -.359 and for QUALMAR is -.209. This says that the number of children is about one and three-quarters times as important as the quality of marriage in predicting attitude about

SPLIT CREW, SINGLE, 24. In the case of SPLIT, the beta coefficient of CHILDREN is  $-.357$  and CREWTIME is  $+.153$ . This says that the response to CREWTIME would have to move slightly more than two units to have the same effect on SPLIT as a one unit move by CHILDREN in the opposite direction. In the regressions where only one predictor variable is determined to be significant, not much can be said about the beta coefficient.

Table X  
Significant Variables, Beta Coefficients, and  $R^2$   
For Husbands

Criterion Variable	Significant Predictors	Beta Coefficients	Cumulative $R^2$
FEMALES ON CREW	CHILDREN	$+.285$	.08
FEMALES WITH MALES	CHILDREN	$+.313$	.10
REGULAR CREW, SINGLE, 24	CHILDREN	$-.341^*$	.12
	QUALMAR	$-.232$	.17
SPLIT CREW, SINGLE, 24	CHILDREN	$-.359^*$	.13
	QUALMAR	$-.209$	.17
TWO FEMALES, SINGLE, 24	CHILDREN	$-.294$	.09
	CREWTIME	$+.220$	.13
RFM	CHILDREN	$-.347^*$	.12
SPLIT	CHILDREN	$-.357^*$	.13
	CREWTIME	$+.153$	.18
TWO	CHILDREN	$-.280$	.08

\* Significant at .01

From the extremely low values of  $R^2$  (.18) it can be said that none of the regression models have a very strong predictive power. It is interesting to note from Tables IX and X that CHILDREN is significant in 13 of the 16 regression models while only three other predictor variables even appear at all. All 13 appearances of CHILDREN have a negative coefficient which means that as the number of children increases so does the objection to the particular statement. In view of the objective of this study, determining relationships between demographic variables and attitudinal variables, it can be said that no strong predictive relationships were found. However, number of children seems to be a noticeable indicator of attitudes.

#### Summary of Results

Frequency analysis showed a general difference between husbands and wives concerning males and females on crew together. Husbands expressed much less opposition than did wives. Strong support was evident in both subpopulations for two females on the same crew as well as for females on crew in general. Correlation analysis showed that the length of alert and the marital status of the female crewmember had little effect on expressed attitudes. Regression analysis found only weak predictive relationships between demographic variables and attitudinal variables.

#### IV CONCLUSIONS AND RECOMMENDATIONS

##### Conclusions

When implementing any new program, it is beneficial to be aware of the feelings of the individuals affected by the new program. An effort can then be made to educate affected individuals about the new program, if necessary, or even minor modifications may be made to relieve some of the anxieties. I feel that in the near future, SAC will be implementing a new program by placing females on Minuteman crews. The affected individuals will be the male Minuteman crewmembers and, if married, their wives. This study was designed to gather information from current married crewmembers and their wives concerning their feelings about having females on Minuteman crews. Unmarried crewmembers were specifically avoided for this study.

Analysis of the data showed a reluctance by wives to accept male/female crews. Very little objection was expressed toward having two females on the same crew. Husbands strongly supported having females on crew with a slight preference for all-female crews as opposed to male/female crews. The results of the correlation analysis indicate that changing the length of the alert would have a negligible impact on the acceptance of female crewmembers, be they married or single. The regression models show no strong predictive power for any of the demographic variables. However, the almost constant presence of CHILDREN as a significant predictor with a negative coefficient is an interesting item. More children in the family could be indicative of more traditional beliefs.

The interpretation of these combined results is that the strongest opposition is not to female Minuteman crewmembers per se but rather to male/female crews. Most of the opposition comes from wives of married crewmembers but not from any clearly identifiable subpopulation of them. This is one area where "women's lib" may not be having much of an effect. As one wife said, "I am a fairly liberated woman. However, this is one area of which I am not in favor as much as I know I should be."

The topic of female Minuteman crewmembers is a controversial one. Although the overall response rate for this study was only slightly more than 50%, one-third of those who responded added written comments to further express their feelings. This is atypically high for any survey. These written comments are included as Appendices C and D. One major underlying concern seems to be present in the written comments, that being the possibility of sexual relations. This concern manifests itself in two ways. Some mention it directly while others only hint at it. Many of the hints could be paraphrased into "It would put an extra burden on family life that is already strained by crew duty." Other hints refer to the lack of privacy in the LCC. As one husband said in reference to the privacy curtain, "It's too bad it doesn't provide any privacy, especially for women." A secondary concern that shows up in several of the written comments deals with higher-level decision-makers, i.e., will they pay any attention to studies such as this?

#### Recommendations

It is recommended that if any follow-up survey is done on this topic, a more exhaustive set of demographic variables be included. Crew

type and crew position were included in this survey instrument but were not included as predictor variables. If any strong predictive relationships had been found, the researcher intended to use these two variables to obtain subsets for use in comparison of regressions. Comparison of regressions based on other subsets would also be possible.

Another addition that might place a different perspective on the husband's responses comes from a wife. She asked in her comments, "How would you like it if a man spent the 24 hrs. (when you were on alert) with your wife?" A set of questions and situations could be developed to see if the husband is congruent in his feelings about male/female togetherness, or if a double standard exists here.

The question labeled MIXED UNINVOLVED needs to be worded differently if it is to be used. It was intended to determine if objections to REGULAR CREW and SPLIT CREW were due to personal involvement. A recommended wording is "If my husband/I were not performing alert duty, I would have no objections to having a male and a female on the same crew."

Hq SAC might also take a look at LCC modifications which could be accomplished to provide more privacy. As mentioned earlier, the lack of privacy in the LCC is a recurrent theme in the comments. More privacy in the LCC could change some attitudes about male/female crew pairings.

I highly recommend that SAC publicize planned policies, such as scheduling and crew pairings, prior to placing females on Minuteman

crews. I also recommend starting by crewing two females together. Even this would be met with some opposition. As one respondent said when referring to two females crewed together, "...like wedging a toe in the door - bit by bit one can get the whole body in!"

An interesting follow-up to this study would concern the feelings of Air Force personnel not on Minuteman crews, and possibly even of the general public, particularly in the areas surrounding the six Minuteman bases.



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APPENDIX A

Approval for the Survey

DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS AIR FORCE MANPOWER AND PERSONNEL CENTER  
RANDOLPH AIR FORCE BASE, TEXAS 78148



REPORT TO  
ATTN OF MPCYPS

SUBJECT Survey Approval (Captain Carolus)

TO AFIT/ENS

1. The survey entitled "Attitudes of Minuteman Missile Combat Crew Members and Their Wives Concerning Female Minuteman Missile Combat Crew Members" has been approved and assigned a survey control number (SCN 78-173) which is valid until 30 Nov 78.

2. Coordination with HQ USAF/ACMI was required due to the inclusion of civilians (AF member's wives) in the sample. Maj Saul Young (AFIT/ENS) was advised of the procedure for obtaining the voluntary participation of member wives while complying to OMB survey guidelines.

FOR THE COMMANDER

A handwritten signature in cursive script, reading "Melvin B. Gambrell", is positioned above the typed name.

MELVIN B. GAMBRELL, Captain, USAF  
Chief, Survey Branch

Cy to: HQ ATC/EDV

## APPENDIX B

### The Questionnaire

Pages 45 to 54 are the packet designed for the crewmember and  
pages 55 to 64 are the packet designed for the wife.

DEPARTMENT OF THE AIR FORCE  
AIR FORCE INSTITUTE OF TECHNOLOGY (ATC)  
WRIGHT-PATTERSON AIR FORCE BASE, OHIO 45433



Dear

My name is Duane Carolus. I am a student at the Air Force Institute of Technology working towards a Master's Degree. My wife and I are familiar with the situation you are in since I spent five years on crew at Ellsworth. She has even suggested some of the questions which I would like you to answer for my thesis. The topic of my thesis is the attitudes of wives of Minuteman crewmembers concerning female crewmembers.

One of the things I plan to do in my thesis is to compare summarized attitudes of husbands with summarized attitudes of wives. The attached questionnaire asks you the same questions your wife is being asked. No attempt will be made to link your responses to those of your wife.

I feel that female Minuteman crewmembers are a real possibility in the near future. Just recently, females have been placed on Titan missile crews. By conducting this survey, I hope to gather information that will be used by SAC in determining if and when females are to be placed on Minuteman crews. The results of this survey could have a significant effect on crew pairings as well as scheduling policies.

I hope that you will assist me by completing the questionnaire as soon as possible and returning it in the enclosed envelope. I encourage your written comments either by the question or in the comments section.

If you are interested in receiving a summary of the thesis and results, please enclose your name and address with the completed questionnaire.

*Duane A. Carolus*

DUANE A. CAROLUS, Captain, USAF  
Department of Systems Management  
School of Engineering

1 Atch  
Questionnaire

### PRIVACY STATEMENT

In accordance with paragraph 30, AFR 12-35, the following information is provided as required by the Privacy Act of 1974:

- a. Authority
  - (1) 5 U.S.C. 301, Departmental Regulation: and/or
  - (2) 10 U.S.C. 80-12, Secretary of the Air Force, Powers and Duties, Delegation by.
- b. Principal purposes. The survey is being conducted to collect information to be used in research aimed at illuminating and providing inputs to the solution of problems of interest to the Air Force and/or DOD.
- c. Routine Uses. The survey will be converted to information for use in research of management related problems. Results of the research based on the data provided, will be included in written master's thesis and may also be included in published articles, reports or texts. Distribution of the results of the research, based on the survey data, whether in written form or orally presented, will be unlimited.
- d. Participation in this survey is entirely voluntary.
- e. No adverse action of any kind may be taken against any individual who elects not to participate in any or all of this survey.

SCN 78-173  
Expires 30 November 1978

### DIRECTIONS

This survey is designed to gather data on the attitudes of married Minuteman crewmembers concerning female crewmembers. Your participation is voluntary and very much appreciated. If you choose not to participate, this survey may be discarded. You should be able to complete the survey in less than 15 minutes. Please return the completed survey in the self-addressed envelope as soon as possible.

Please do not put your name on the survey. Any answers you provide will be strictly confidential and seen only by Air Force Institute of Technology researchers. No individual information will be given to anyone outside of the research team. Please feel free to make written comments by any of the questions/statements or in the "Comments" section on the final page.

The results of these surveys will be incorporated into a Master's thesis to be completed in December 1978 by Captain Duane Carolus. A copy of the thesis will be placed on file in the AFIT School of Engineering library upon completion.

Please circle the letter of the appropriate response.

1. What is your crew classification?

- a. Standboard
- b. Instructor
- c. Flight Commander
- d. Line

2. What is your crew position?

- a. Commander
- b. Deputy

3. What is your rank?

- a. 2Lt
- b. 1Lt
- c. Captain
- d. Major or above

4. How long have you been on a Minuteman crew?

- a. Less than 1 year
- b. More than 1 year but less than 2 years
- c. More than 2 years but less than 3 years
- d. More than 3 years but less than 4 years
- e. More than 4 years

5. What is your age group?

- a. Under 25
- b. 25-29
- c. 30-34
- d. 35 or more



6. What is your highest level of formal education?
- a. Completed high school
  - b. Some college work (no degree)
  - c. Bachelor's Degree
  - d. Some graduate work (no degree)
  - e. Master's Degree
  - f. Work beyond Master's Degree
7. Is this your first marriage?
- a. Yes
  - b. No
8. How many years have you been married to your present wife?
- a. Less than 2
  - b. 2-5
  - c. 6-9
  - d. 10 or more
9. How many children do you have?
- a. 0
  - b. 1
  - c. 2
  - d. 3 or more
10. How would you categorize your marriage?
- a. Very bad
  - b. Bad
  - c. So-so
  - d. Good
  - e. Very good

Please respond to statements 11 through 14 based on a 24 hour alert tour (all in the capsule). CONSIDER THE FEMALE CREWMEMBERS TO BE SINGLE.

11. I have no objections to having a female as my regular crewmember.

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

12. I have no objections to performing alert with a female crewmember when either she or I are from the standby crew (split alert situation).

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

13. I have no objections to having a male and female on the same crew as long as I am not the male involved.

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

14. I have no objections to having two females on the same crew.

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

Please respond to statements 15 through 18 based on a 24 hour alert tour (all in the capsule). CONSIDER THE FEMALE CREWMEMBERS TO BE MARRIED.

15. I have no objections to having a female as my regular crewmember.

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

16. I have no objections to performing alert with a female crewmember when either she or I are from the standby crew (split alert situation).

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

17. I have no objections to having a male and female on the same crew as long as I am not the male involved.

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

18. I have no objections to having two females on the same crew.

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

Please respond to statements 19 through 22 based on a 40 hour alert tour (8 in the capsule, 8 resting topside, 8 in the capsule, 8 resting topside, 8 in the capsule). CONSIDER THE FEMALE CREWMEMBERS TO BE SINGLE.

19. I have no objections to having a female as my regular crewmember.

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

20. I have no objections to performing alert with a female crewmember when either she or I are from the standby crew (split alert situation).

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

21. I have no objections to having a male and female on the same crew as long as I am not the male involved.

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

22. I have no objections to having two females on the same crew.

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

Please respond to statements 23 through 26 based on a 40 hour alert tour (8 in the capsule, 8 resting topside, 8 in the capsule, 8 resting topside, 8 in the capsule). CONSIDER THE FEMALE CREWMEMBERS TO BE MARRIED.

23. I have no objections to having a female as my regular crewmember.

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

24. I have no objections to performing alert with a female crewmember when either she or I are from the standby crew (split alert situation).

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

25. I have no objections to having a male and female on the same crew as long as I am not the male involved.

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

26. I have no objections to having two females on the same crew.

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

27. If males and females are placed together on a crew, I would prefer \_\_\_\_\_.

- a. 24 hour alerts
- b. 40 hour alerts

28. Females should not be placed on Minuteman crews, irrespective of whether they are crewed with males or females.

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

29. Females should not be placed on Minuteman crews with males.

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

Comments (continue on backside of pages if necessary):

DEPARTMENT OF THE AIR FORCE  
AIR FORCE INSTITUTE OF TECHNOLOGY (ATC)  
WRIGHT-PATTERSON AIR FORCE BASE, OHIO 45433



Dear Mrs.

My name is Duane Carolus. I am a student at the Air Force Institute of Technology working towards a Master's Degree. My wife and I are familiar with the situation you are in since I spent five years on crew at Ellsworth. She has even suggested some of the questions which I would like you to answer for my thesis. The topic is the attitudes of wives of Minuteman crewmembers concerning female crewmembers.

The attached questionnaire is designed to gather data for my thesis. I will be attempting to determine if there are any relationships between the various identifying categories and the expressed attitudes. Your husband is being asked to answer the same questions. No attempt will be made to link your responses to those of your husband. However, summarized attitudes of husbands will be compared with summarized attitudes of wives.

I feel that female Minuteman crewmembers are a real possibility in the near future. Just recently, females have been placed on Titan missile crews. By conducting this survey, I hope to gather information that will be used by SAC in determining if and when females are to be placed on Minuteman crews. The results of this survey could have a significant effect on crew pairings as well as scheduling policies.

I hope that you will assist me by completing the questionnaire as soon as possible and returning it in the enclosed envelope. Typical time to complete the questionnaire is less than 15 minutes. I encourage your written comments either by the question or in the comments section.

If you are interested in receiving a summary of the thesis and results, please enclose your name and address with the completed questionnaire.

*Duane A. Carolus*

DUANE A. CAROLUS, Captain, USAF  
Department of Systems Management  
School of Engineering

1 Atch  
Questionnaire

### PRIVACY STATEMENT

In accordance with paragraph 30, AFR 12-35, the following information is provided as required by the Privacy Act of 1974:

- a. Authority
  - (1) 5 U.S.C. 301, Departmental Regulation: and/or
  - (2) 10 U.S.C. 80-12, Secretary of the Air Force, Powers and Duties, Delegation by.
- b. Principal purposes. The survey is being conducted to collect information to be used in research aimed at illuminating and providing inputs to the solution of problems of interest to the Air Force and/or DOD.
- c. Routine Uses. The survey will be converted to information for use in research of management related problems. Results of the research based on the data provided, will be included in written master's thesis and may also be included in published articles, reports or texts. Distribution of the results of the research, based on the survey data, whether in written form or orally presented, will be unlimited.
- d. Participation in this survey is entirely voluntary.
- e. No adverse action of any kind may be taken against any individual who elects not to participate in any or all of this survey.

SCN 76-173  
Expires 30 November 1978



### DIRECTIONS

This survey is designed to gather data on the attitudes of wives of Minuteman crewmembers concerning female crewmembers. Your participation is voluntary and very much appreciated. If you choose not to participate, this survey may be discarded. You should be able to complete the survey in less than 15 minutes. Please return the completed survey in the self-addressed envelope as soon as possible.

Please do not put your name on the survey. Any answers you provide will be strictly confidential and seen only by Air Force Institute of Technology researchers. No individual information will be given to anyone outside of the research team. Please feel free to make written comments by any of the questions/statements or in the "Comments" section on the final page.

The results of these surveys will be incorporated into a Master's thesis to be completed in December 1978 by Captain Duane Carolus. A copy of the thesis will be placed on file in the AFIT School of Engineering library upon completion.

Please circle the letter of the appropriate response.

1. What is your husband's crew classification?
  - a. Standboard
  - b. Instructor
  - c. Flight Commander
  - d. Line
2. What is your husband's crew position?
  - a. Commander
  - b. Deputy
3. What is your husband's rank?
  - a. 2Lt
  - b. 1Lt
  - c. Captain
  - d. Major or above
4. How long has your husband been on a Minuteman crew?
  - a. Less than 1 year
  - b. More than 1 year but less than 2 years
  - c. More than 2 years but less than 3 years
  - d. More than 3 years but less than 4 years
  - e. More than 4 years
5. What is your age group?
  - a. Under 25
  - b. 25-29
  - c. 30-34
  - d. 35 or over

6. What is your highest level of formal education?
- a. Completed high school
  - b. Some college work (no degree)
  - c. Bachelor's Degree
  - d. Some graduate work (no degree)
  - e. Master's Degree
  - f. Work beyond Master's Degree
7. Is this your first marriage?
- a. Yes
  - b. No
8. How many years have you been married to your present husband?
- a. Less than 2
  - b. 2-5
  - c. 6-9
  - d. 10 or more
9. How many children do you have?
- a. 0
  - b. 1
  - c. 2
  - d. 3 or more
10. How would you categorize your marriage?
- a. Very bad
  - b. Bad
  - c. So-so
  - d. Good
  - e. Very good

Please respond to statements 11 through 14 based on a 24 hour alert tour (all in the capsule). CONSIDER THE FEMALE CREWMEMBERS TO BE SINGLE.

11. I have no objections to my husband having a female as his regular crewmember.

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly Agree

12. I have no objections to my husband performing alert with a female crewmember when either my husband or the female is from the standby crew (split alert situation).

- a. Strongly Disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly Agree

13. I have no objections to having a male and a female on the same crew as long as my husband is not the male involved.

- a. Strongly Disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly Agree

14. I have no objections to having two females on the same crew.

- a. Strongly Disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly Agree

Please respond to statements 15 through 18 based on a 24 hour alert tour (all in the capsule). CONSIDER THE FEMALE CREWMEMBERS TO BE MARRIED.

15. I have no objections to my husband having a female as his regular crewmember.

- a. Strongly Disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly Agree

16. I have no objections to my husband performing alert with a female crewmember when either my husband or the female is from the standby crew (split alert situation).

- a. Strongly Disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

17. I have no objections to having a male and a female on the same crew as long as my husband is not the male involved.

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

18. I have no objections to having two females on the same crew.

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

Please respond to statements 19 through 22 based on a 40 hour alert tour (8 in the capsule, 8 resting topside, 8 in the capsule, 8 resting topside, 8 in the capsule). CONSIDER THE FEMALE CREWMEMBERS TO BE SINGLE.

19. I have no objections to my husband having a female as his regular crewmember.

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

20. I have no objections to my husband performing alert with a female crewmember when either my husband or the female is from the standby crew (split alert situation).

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

21. I have no objections to having a male and a female on the same crew as long as my husband is not the male involved.

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

22. I have no objections to having two females on the same crew.

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

Please respond to statements 23 through 26 based on a 40 hour alert tour (8 in the capsule, 8 resting topside, 8 in the capsule, 8 resting topside, 8 in the capsule). CONSIDER THE FEMALE CREWMEMBERS TO BE MARRIED.

23. I have no objections to my husband having a female as his regular crewmember.

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

24. I have no objections to my husband performing alert with a female crewmember when either my husband or the female is from the standby crew (split alert situation).

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

25. I have no objections to having a male and a female on the same crew as long as my husband is not the male involved.

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

26. I have no objections to having two females on the same crew.

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

27. If males and females are placed together on a crew, I would prefer \_\_\_\_\_.

- a. 24 hour alerts
- b. 40 hour alerts

28. Females should not be placed on Minuteman crews, irrespective of whether they are crewed with males or females.

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

29. Females should not be placed on Minuteman crews with males.

- a. Strongly disagree
- b. Disagree
- c. Undecided
- d. Agree
- e. Strongly agree

Comments (continue on backside of pages if necessary):



## APPENDIX C

### Written Comments from Married Crewmembers

These written comments were copied from the questionnaires as they were received. No attempt at organizing them in a particular manner has been made.

COMMENTS FROM MALE RESPONDENTS

"Although I am opposed to females on crew I would have no objections having them as a crew partner."

"I think that females should be allowed on crew as part of a total female crew. I am undecided about females crewed with males, esp on a 24 hour alert, not enough privacy."

"40 hours is simply too long to be on alert with a female and expect no emotional ties to develop. The type of relationship between two males on crew - usually a strong friendship - would not be 'allowed' in a 'mixed crew'. Humans are just that!"

"There is change in the wind. There is a strong possibility that alert tours will change - not to the 'old' 40 hour system, but to the 'new' 48 hour continuous (in the capsule) alert. Last winter I spent one continuous 95 hour alert (in the capsule). If the crew were mixed, she would have to be very liberal. My deputy got sick and I played nurse for 4 days. However, others (i.e., executive secretary) are in similar situations at times and no adverse affects seem to occur. We are all (supposedly) mature responsible individuals and I don't think anyone would give the 'mixed' crew concept a second thought after its implementation."

"Would cause definite scheduling problems. Would cause marital problems in many instances. You might even receive a great deal of resistance from wives. Justifiably so."

"I feel that females on crew are inevitable, there's no reason that they should skate on this bad deal (crew duty). I don't care if "they" crewed me with a female as long as she did her job. I don't know about having an all-female crew under 40 hours. I think that most officers could handle the split or full female crew situation however I don't know how topside personnel would react to a full-female crew around for two days."

"My own feelings should not be imposed on others. I myself have no objection with being crewed with a female, married or single, for 40 or 24 hours, under any circumstances. Question 29 is Undecided: Air Force policy has been known to fail, in its actual working, to take individual preferences into account. For someone else, a male-female crew pairing could ruin a marriage, which I do not feel is applicable to my own."

"The living conditions would cause too many marital problems. Even if the male/female crew was entirely businesslike, rumors and possible ruined reputations may result. When rumors start, they would get back to the wives. Then you (the MCC) would have to defend yourself to your wife after almost every alert. One-sex crews would not have this problem. However, when they lose time - the standby may be a male. Also future manning may cause a lack of qualified females to fill slots. So, you would have the same problem. Having one male and one female in an underground confined area is not a good idea."

"My objections to having a female crew partner are relatively mild, and relate only to the working environment and my lifestyle. My marriage

is strong; I have no fears about having a female crew partner on that account. Rather I feel that it could cause self-imposed restraints on my behavior, as I have rather old fashioned ideals about gentility, etc. Crew duty is tiring and frustrating enough without the self-imposed tension of being nice without being emotionally involved.

I see problems that can arise when crewmembers are single, or have marital problems. I think that crews would have to be carefully paired, and split alerts minimized. This would create difficulty for scheduling.

As to whether women should be placed in this AFSC, I wouldn't wish crew duty on anyone! Actually, I realize the importance of the job, and I am proud to serve. I am certain that women will eventually be Minuteman crew members. I plan to have a staff AFSC by that time."

"If women are allowed on Minuteman crews and will be crewed with men, there should be some capsule modifications to insure privacy when necessary. I personally feel that there would be too many possible marriage and/or moral problems resulting from male/female crews to make it worthwhile."

"It is interesting that affirmative action hasn't happened already. Historically the affirmative action implementation was not proceeded by an evaluation of attitudes of those affected by the law. I don't think legislatures will resist if properly influenced by aggressive affirmative action request by a few."

"The Air Force has found that the female military member can be utilized in areas here to fore thought to be only male capable areas.

If a female is capable of understanding and performing the duties required of a crewmember (and I see no reason they can't) then they should be given the opportunity to do so.

Let them prove again, Man is not alone on the earth and they are as much a part of our lifestyle at work as they are at home!"

"Who Cares?"

"I, myself would be on crew with a female but this would be a horrible can of worms with wives. Also the first group would be very select and outperform and alienate themselves from the men. Having a male/female crew on a split basis only is a scheduling, upgrade, shop selection (instructor, standboard), and other areas nightmare. The entire wing would have to be female because even if 1 squadron was female, the problems of scheduling, upgrade, shop selection would be an unfair burden to somebody.

Women would be completely capable of handling crew duty though and would make fine crewmembers."

"It is difficult enough for any family to stay together in today's Air Force which requires much family separation. Why add obvious opportunity for contention between the husband and wife. One joke by a 'friend' at a party could irreversibly plant the seeds of doubt in the mind of the mate. Don't let this thing come to pass!!!!"

(FEMALES WITH MALES) "If we have to have female crewmembers, the Air Force should insure that each crew has a male on it.

Minuteman crew duty is not a good place to employ a female in the Air Force. For the most part, crewmembers are subjected to a great deal of mental stress, whether it is from the grind of an alert or from the tensions of a standboard. I, for one, would not want a crew partner that is irritable or emotional at 'that time of the month' given these conditions. Alerts are bad enough and career progression hinges too much on getting HQ's on standboards to have a female crew partner that is suffering during her period. I have not met a WAF in the five years in the Air Force that could cope with crew duty.

In addition, if you or anyone else thinks that there would not be some affairs between males and females on the same crew, think again. Given that crews are alone most of the time behind an 8 ton blast door, anything could go on, and no one would be the wiser. In case you have forgotten, integrity is not one of the primary virtues of crewmembers. Besides, after you get snowed in on an alert for three days (underground), a male crew partner even begins to look good."

"Point one we currently have 24 hour alerts; therefore your questions about 40 hour alert seems not to apply. There is also strong consideration to going to 48 hour alerts (no rest time topside). In addition to the time a crew spends together on alerts, there is EWO and Codes

training, MPT rides and other activities which put them in close proximity for long periods of time."

"The situation depends on whether she knows her job or not!"

(BY SINGLE, 24) "These are difficult questions to answer for a number of reasons. 1st If you base all this on just plain relative male/female basis I believe either one are capable of pulling alert duty as it presently stands. I do believe that no matter what the condition of your marriage, from good to bad it is going to end up a lot worse. I think that every wife regards every woman as a potential threat to any marriage.

I feel that the potential is much better for Titan crews than it would be for Minuteman crews. I like 24 hour alerts, and really would not be overjoyed with a return of 32-36 or 40 hour tours. There is presently no way SAC provisions can be maintained and sleeping and latrine facilities could be adapted in a Minuteman capsule.

(BY MARRIED, 24) My comments would be the same as previously stated - It really makes no difference as to the marital status of the female crewmember. I might just add that as most former crewmembers know, special attachments are formed between crewmembers and I really don't feel that it would be very beneficial to have those attachments formed whether either/or both members are married.

(BY SINGLE, 40) Same comments as previous except with 8 down 8 up there would be seldom any problem - There is however potential problems with snowouts, etc. that I'm still not willing to charge ahead. There would be a

possible solution if SAC would be able to do away with the two 'person' concept and/or two officer concept on a continual basis - but you will never be able to get away from the attachments formed.

I would like to only say that I consider myself to be a professional. If the controlling people decide to do this all the rules and regs will be followed. I would put in for a change of assignment but if denied that change, I would continue to perform to the highest degree possible. I do not agree with women on the crewforce, and it has little to do with their capabilities. I consider women in the Air Force a very valuable resource and a very valuable group of professionals, but as a married crewmember and as an individual studying for a Masters degree in Counseling with emphasis on the family, this can have a devastating impact on what little strength is left in the American family.

(MIXED UNINVOLVED) Inconsistent with 11 (REGULAR CREW) and 12 (SPLIT CREW) above. I see no reason why mixed crews could not work for me or anyone else.

I believe any marriage endangered by a mixed male-female crew would be in trouble anyhow. Who the spouse works with would have little effect on a sound marriage.

(TWO FEMALES) Because when there is an odd number of female crewmembers, one will have to be crewed a male crewmember. This will lead to undesirable inroads with respect to the crewforce of males.

The practicality of having females on the Minuteman crewforce is almost as absurd as the so-called Equal Rights Amendment! I champion



the rights of women, especially equal pay for equal work. However, I'm diametrically opposed to the many insidious attempts to destroy the basic foundation of society and this country; the family. The ramifications of having women on the crew force are totally unacceptable. The licentious behavior of our decadent society needs no additional impetus.

The practicality of men and women pulling alert together alone, in the LCC is nonsensical. The Lavatory-Water Closet in the LCC is equipped with a privacy curtain 'to provide an aesthetic atmosphere.' It's too bad it doesn't provide any privacy, especially for women."

"Women pulling Minuteman combat crew alerts is a logical and necessary extension of the Titan experiment. It is an entirely sensible approach to total utilization of all USAF personnel."

## APPENDIX D

### Written Comments From Wives

These written comments were copied from the questionnaires as they were received. No attempt at reorganizing them in a particular manner has been made.

## Appendix D

### Written Comments from Wives

"I trust my husband and I wouldn't feel threatened by any of his crewmembers. If he was that desperate he could have sexual relationships with either female or male crewmembers!"

"I would hate to see alerts go back to 40 hrs no matter who was crewed with my husband. A female deputy wouldn't bother me on a 24 hr alert. Regarding a 40 hr alert, I would want to know IN DETAIL just how the A.F. was handling the sleeping arrangements. If they (the A.F.) is indiscreet about this matter, they will have more trouble than they could EVER imagine!"

"Women and men on crew together would cause havoc between married couples. I see no sense in aggravating an already touchy situation in some households. Personally, I don't mind the 2 alerts for instructors. It gives us all a rest. Seven or eight alerts cause the husbands to become strangers to their wives and children. To put a female with our "stranger" could cause the Air Force divorce rate to climb even higher than it already is."

"My answers are strictly decided on only my own family experience, as in situation there is always an exception that would ruin it for others."

From my knowledge of the missile field women could prove to be very effective officers and very abled crewmembers.

Whether a woman is married or single makes little difference, for the simple reason with today's lifestyle an affair could be created if the desires were there. They needn't be crewmembers for that to happen either.

Being totally honest though and facing reality I'd prefer my husband to be crewed with another male, but I would not protest his getting a female deputy.

I have always preferred the 40 hr alert. But I feel it would be the best since there would be a break in the 1 to 1 relationship and in a way provide a cooling off period. It only takes a few minutes but a change every 8 hrs. is helpful in keeping self control.

Females crewed together would be best but let's try both ways.

Either way would work if gossips weren't started, people weren't jealous or envious and we truly trusted our mates. My marriage being very strong, it wouldn't bother me as much as it would others whom have problems."

"The capsules are too small to lend any privacy, i.e., toilet facilities, bunk bed for resting. I don't think it would be comfortable for the male or female crewmembers to share such a small space, especially on the 24 hr alerts.

If it was necessary for my husband to pull an alert with a female crewmember on a standby basis I would not object provided another female was not available.

Two females can be as capable as two males on alerts."

"I am a fairly liberated woman. I am in/have been in a position of authority over men and women in a mental health clinic. However, this is one area of which I am not in favor as much as I know I should be. I cannot accept it as a viable option; i.e., men and women being placed on alerts together. I'm not even sure how positive I feel about having 2 females together on alert in a capsule."

"I believe in the vulnerability of a male or female married or not, so my answers are unchanged. Because of that vulnerability I don't think any 1 male or any 1 female should be crewed together. Even if you totally trust your companion it's an unnecessary stress and anxiety on a relationship."

"The missile crew force, as well as many of the other jobs in SAC, places a very heavy strain on any marriage. There is no regular schedule, there are periods when a wife sees her husband not at all and other times when he's constantly home. I place complete trust in my own husband, but I don't feel that the added strain of close contact with another female is necessary to add to an already frustrating work situation.

This does not mean that I think women are incapable of crew duty. In fact, I'm sure they are. I would like to see missile op's opened to women, although I realize that having single sex crews would be a scheduler's nightmare. The only way I would accept mixed sex crews would be if the man and woman were already married. If that were an option, I'd even join the Air Force!"

"I would be very upset if women were allowed on crew. The Air Force doesn't give my husband a choice as to who he is crewed with so if there were women his chances of getting crewed with one would be just like anyone else's. As it stands now missile duty is not very conducive to family life or a strong, healthy marriage and allowing women in would only aggravate the situation. While I don't mind my husband spending time with other men on duty or off what wife in her right mind wants her husband hanging around with some other woman as much as 48 to 72 hrs. a week? Just the 2 of them - alone that's more time than I get alone with him!

But after 3-1/2 years in the Air Force I don't feel it is very family oriented and I really don't think anyone in a decision-making position will give much thought as to how we feel about the situation.

In my own opinion I would not be able to cope psychologically with it and hopefully because of my state of mind my husband would be taken off PRP and not be pulling alerts! To put it bluntly, I'm a jealous wife who doesn't want to see her husband spending that much time alone with any other female."

"At present I am totally against the idea. I don't agree that there is any amount of professionalism being considered in the Air Force's decision. For one, the capsules allow for no privacy for either party whatsoever. The length of alert is really not a question - but you obviously have not been stationed at Ellsworth - my husband was stuck out on alert (over 72 hours) a number of times last year

and in other winters. I have a lot of feelings against this idea that probably are emotional in origin, but having prior service myself, I know that implementation of the program is more of a retaliation matter and will not take into account the people going on crew.

I know you have a hard question to answer, but I'm sure you will find in the future that if the program is accepted, that the Air Force will have an even greater problem in keeping the career of Minuteman in very high esteem.

Also, wives have never been considered a factor, obstacle or human being in any other military decision, so why now?"

"I would not object to my husband having a female partner unless she were outrageously beautiful and a nymphomaniac. It's easy enough to switch off crewmembers if any difficulties should arise. At least that has been the case in our squadron in the past regarding incompatible crewmembers - whatever the reason for the incompatibility might be. My husband has never given me any reason not to trust him, and with his strong Christian morals and ethics, I really don't think I have anything to fear. I think that men and women can contribute equally in this field so long as they approach their jobs in a professional manner."

"As a psychologist working in private practice and as the wife of a crewmember I have discussed the strain that is placed on the military family even under the best of circumstances.

Families of crewmembers often have difficulty in adjusting to the lifestyle required. If a marriage is already experiencing difficulties and if the wife is insecure in the relationship, the coupling of her husband and a female crewmember would in my judgment be very threatening to her.

The military with its frequent separations, odd hours, frequent moves does not have a reputation for building up family unity. In this day and age wives (particularly wives of officers) see themselves as unpaid employees who experience many demands on their time with the idea constantly being given to them that they are somehow responsible for their husband's career. This produces both guilt and anger which place even more strain on the marriage.

As I indicated on the questionnaire, I personally would have no objections to my husband being paired with a female crewmember. But there are males in the crews that I feel I would not like to see pair with females. If males and females were paired on a large scale at some point someone would attempt to bring the circumstance into question in a legal divorce proceeding.

As a professional career woman I feel that women should be given opportunity to work in every field the military has to offer. As a mental health worker, I see potential problems that would be caused by pairing males and females on crews. The adjustment for the crewmembers under those circumstances could be very difficult. The possibility of sexual promiscuity cannot be ignored. The impact on the family in many cases would be negative. A change in policy should take into account all factors before being put into effect."



"I believe crewmembers and their families suffer some strain and frustration and inconvenience not felt on jobs of 'normal' (7:00 to 4:00) hours. I have felt angry having to handle situations I considered he should or could have dealt with so much more naturally or effectively (especially on 40 hr alerts). Not being with the family for important events has meant a real loss in memories and togetherness and special times shared, not just anniversaries or birthdays (those can be planned for as you know) but school events the children participate in - Sunday services, etc. To crew my husband with a woman crewmember would be heaping insult on top of injury!! I said I had been inconvenienced, but I consider this possibility a threat - if not to our marriage in reality, at least it would be one more area for misunderstanding and possible accusation - of worry and fear for me - of possible temptation for him and/or her."

"There are those people who take advantage of any situation, both male and female, who could make life very difficult for their crew partner of the opposite sex. Moreover, whenever 2 people are placed in continuous close proximity, as on a crew where they are together in much of their off alert duty as well, they are bound to become very close - the law of propinquity. Moreover, conditions in the capsule make male/female crews impractical - i.e., the "bathroom" - does he leave the capsule, and what do you do while she's having her period and needs extra paraphernalia and trashcans, etc? (I would be extremely embarrassed in these conditions, as would my husband.) If you wish to place two

women on the same crew, it would be easier in the capsule, but then you must maintain two standby crews - male and female - causing greater expenses - more crews, transportation, etc. And where do they go to change clothes? (on male-female crews, that is?)

I believe, under the circumstances of a two member crew in a small open capsule, that female crewmembers are basically far more problems than they are worth. There are just some situations in which men and women shouldn't be mixed.

I would strongly and loudly object if at any time the A.F. decided to place women on mixed Minuteman crews - and probably on unmixed crews as well, as that would just lead directly to mixed crews."

"I feel it would be unfair to not allow women to work in SAC, but they should be crewed with females.

I strongly feel that SAC would be adding to the immorality of many of their citizens, if they were to crew men and women together.

I feel that a Commander and his deputy develop a close relationship, and it would be hard for any man or woman not to do likewise; therefore I am strongly against crewing men and women together regardless of the alert time (24 hr or 40 hr); or if they are married or single."

"If the crews rotated the shifts (8 hours) in capsule, (8 hrs) in launch facility above ground, I believe I wouldn't have any objections

to a male-female crew. But as it stands now, 24 hr alert tour all in the capsule, well I think that that much time together under those conditions might be too much temptation for anyone (and you know what I mean, I'm sure)."

"I feel that women should be able to be crewmembers just like men are. I think that women can do just as good if not better at their jobs. This is a tough job with a lot of pressures but if a woman is interested and willing to work then she should have the opportunity to work in this job.

As far as her being crewed with my husband, well I trust my husband of course and I strongly believe that nothing would happen. I may be unusual in my thinking but I honestly would not be worried or bothered by it. I would try to be a friend to her and help her in any way I could."

"Having taken several courses in polling, I feel that this poll has some invalid points. It seems too limited.

It may be important to note that I will begin my Master's this year - and I have retained my maiden name."

(BY REGULAR CREW, SINGLE, 24) "In a crew situation, it is difficult to stay 'impersonal' with the other crewmember. I believe temptation is hard to avoid - even in the best of marriages there are ups and downs. Having another female 'available' 24 hrs at a stretch is pushing anyone's limits - even in the best of marriages.

(BY MIXED UNINVOLVED, SINGLE, 24) Why jeopardize family structures anymore than SAC already does? SAC families don't need that kind of strain!

(BY TWO FEMALES, SINGLE, 24) If they maintain that crew and they crew females only with females.

(BY REGULAR CREW, MARRIED, 24) What quality of marriage does the female crewmember have? This still puts a strain on the family and crewmembers.

This is a highly emotional issue. Having been divorced and re-married to the same man, one might assume by reading my responses that I don't 'trust' my husband. WRONG. As I stated previously, even the so-called 'perfect' marriage has good times and bad. Why encourage infidelity by placing temptation so close within reach?

The AF, SAC in particular, seems to have very little regard for the family unit. The structure of the Alert force and schedules (be it crew of missile sites or bombers!) is not conducive to stable marriages and it is! Why introduce something else to tear down the family?

Some marriages need all the help they can get to work things through and profit by a better marriage. Female crewmembers do not help.

If SAC wants a happy Air Force, SAC should pay more attention to making a happy family man! (and wife!).

On the job-quality side, I might be inclined to believe job quality might fall with 'mixed crew'."

"I am more opposed to the 40 hour alert tour than to females on crew.

Having been married to a military man for 15 years I find it irrelevant as to whether females are on alert crews. My husband has been on many TDYs over the past 15 years, some with females traveling with the group, others to offices where females worked. Having females on alert crews, in my opinion, present no more of a threat than TDYs."

"In my opinion, females should be placed on Minuteman crews with another female unless in an emergency such as one male crewmember becomes ill. I think my husband would feel uncomfortable with a female especially with the toilet facilities offered in the capsule."

"First of all - there are enough problems in marriages these days - couples have to WORK for healthy, flourishing relationships. Divorce statistics are staggering! Moral corruption is rampant. I believe these issues (women on crew, etc.) go beyond women's rights.

Secondly - from experience I've seen that the Air Force often has 'manning problems', and so schedules do not always stay as established - I see having women on crew separated from men - would eventually be a thing of the past (like wedging a toe in the door - bit by bit one can get the whole body in!) This would just be the start of something very few women I've talked with are positive toward."

"No matter what rules and regulations the military could place on this subject, a man is a man and a woman is a woman and that would override

all. We all know of the games men and women play. A deputy male would hate to see a woman commander as his superior. The battle of the sexes would be on. He would have to prove his manhood by being superior to her. Would their minds be on safeguarding their country? I know this may sound over-dramatic but I believe it to be true. I've been around officer line-crew members for over 3 years. They aren't superior well-mannered people just because they're officers. I can see male commanders harrassing female deputies especially right around OER time, 'Do as I say or you'll get a 3.' The whole thing of this is that the male/female relationship is too strong for them to be crewed together. I don't want my husband being forced to be buddy-buddy and spend so much time with another woman. Troubles at home and a woman's sympathetic ear could be disastrous even in the best marriage. With an all-male crew, there is no problem. I don't object to ocassional alerts on standby with women. These things would occur from time to time I'm sure. I strongly object to the closeness and amount of time another woman would spend with my husband, when the Air Force and SAC won't even let me spend half that time with him."

"I guess my main concern with male and female crews is the chance that my husband's best friend might be another woman."

"I see nothing wrong with females (married or single) being assigned to Minuteman crews with other females. Males and females should not be assigned together under any circumstances.

This feeling is not based merely on jealousy (although that certainly enters the picture), but it is based on the knowledge from my husband on how emotionally dependent crewmembers can become on one another due to the nature of the job and the proximity of the quarters. This is acceptable to the spouse of the crewmember as long as the crewmember is of the same sex, but totally unacceptable to the spouse if the crewmembers should be of opposite sexes. No marriage should be expected to carry this strain of having some other female (or male) be as close, in many areas, to their spouse as they are at home. To not expect this to occur is being totally unrealistic.

There is also the problem of there being a certain amount of uncomfortableness, being ill-at-ease, and plain embarrassment on the part of crewmembers of the opposite sex that will hinder their professional performance. There is also a great deal of off-duty communications between crewmembers, and even though it may be job-related, will only add fuel to the fire in marriages if the crewmembers are not of the same sex.

I have complete faith and trust in my husband as to anything illicit going on. However, I would deeply resent any other woman spending that amount of time with him on a one-to-one basis, and getting to know him in many ways as I do, and also being a part of his life that I cannot share. This is a feeling deep in the heart of every woman who deeply loves her husband and cannot nor should not be ignored when this idea of pairing males and females together on the same crew is contemplated. If this happens, I predict a lot of unhappy, tense

crewmembers which will reflect on their overall attitude and job performance!

I believe women are as capable of learning the Minuteman system as men. However, they should only be paired with other women. The only exception may possibly be if both crewmembers are single, although this may not be acceptable for other reasons."

"I would not totally disagree with female crews as long as a female and male standby crew were available. I absolutely disagree with mixed crews; period! Why put another strain on a good marriage when the job alone carries enough pressures? I really believe they'll be playing with fire -- mine to be sure of!"

"Placing male and female crewmembers together as a crew is certainly going to create problems. We are all only human and working together in such an isolated confining environment could certainly lead to family problems where either one or both are married. I must admit, pulling alerts could certainly be more interesting and enjoyable for the guys! Ha! The weather conditions at most missile bases can get very critical in the winter. I would not appreciate the fact that when my husband is stranded at a missile silo for 5-7 days during a blizzard that he would be spending this time in the company of another female. Basically I feel that women are as capable as men for fulfilling the job as a crewmember. If members of the same sex make up the crew I feel many less problems would arise. I would not want my husband to be crewed with a female."



"I think that it is ridiculous to assume that, because a male and female are crewed together, they would naturally form a sexual relationship. Why would any persons throw themselves at each other, just because they work together and are of opposite sex? If a married person was interested in 'extra activity' outside the home, I'm sure he or she could find it with or without bisexual crew pairings. I can think of no reason why a woman would be unqualified to work on a Minuteman crew, or why she shouldn't be paired with any other qualified crewmember."

"After 12 years of marriage I feel like I know my husband well and I do trust him completely. However, having him gone on 24 hr alerts is strain on the family enough without adding the irritation that he's spending the time with another woman. How would you like it if a man spent the 24 hrs (when you were on alert) with your wife?"

"I feel I trust my husband and if I can't trust him with a female crewmember I can't trust him with any female. I truly feel if he's going to step out he can find a million ways to do it so why should a female crewmember make the chances of it happening easier.

As long as the woman is qualified, intelligent I feel there's no reason why women should be barred from being a crewmember. Women have worked with men for years and years, so I do not see a problem in our marriage. As for other marriages, the story may be different."

VITA

Duane Allen Carolus [REDACTED] He

[REDACTED] in 1965 [REDACTED] attended Westmar College (IA) from which he received the degree of Bachelor of Science in June 1969. After graduation, he attended Officer Training School and was subsequently commissioned 2nd Lieutenant in the U.S. Air Force in November 1969. He was initially assigned as a Deputy Missile Combat Crew Commander with the 44th Strategic Missile Wing, Ellsworth AFB, South Dakota. After serving as a Missile Combat Crew Commander, he was assigned as Alternate Positive Control Code Custodian until he entered the School of Engineering, Air Force Institute of Technology, in June 1977.

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Utilization of females in new career fields has been steadily increasing in the Air Force over the past few years. One career field not yet opened to females is Minuteman Missile Combat Crew duty. This study analyzes the attitudes of married male Minuteman combat crewmembers and their wives about female crewmembers.		

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20. (continued)

Frequency analysis, Correlation analysis, and Linear Regression analysis techniques were used to determine various statistical relationships. Data was supplied by married crewmembers of the 44th Strategic Missile Wing at Ellsworth Air Force Base, South Dakota and their wives. The analysis showed that crewmembers and their wives thought females should be allowed to be on Minuteman crews. The wives indicated an overwhelming preference for an all-female crew as opposed to a male-female crew. The crewmembers were about evenly split as to type of crew pairing. The author recommended using an all-female crew pairing plan when females are initially assigned to Minuteman Combat Crews.

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